REMARKS

Reconsideration of this application and the rejection of claims 29-39, 43-49 and 52 are respectfully requested. The Applicant has attempted to comply with every requirement set forth in the Office Action dated August 3, 2010 (Paper No. 20100720) and believes that the application is now in condition for allowance. The claims have been amended to more clearly define the present invention.

Claim 39 is rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement. Specifically, the Examiner states that the phrase "computer module" is not supported in the specification. Claim 39 is also rejected under 35 U.S.C. §112, second paragraph, as being unclear as to whether the computer module is part of the software module. Furthermore, the Examiner states that there is an insufficient antecedent basis for the phrase "said computer module" in claim 39.

Applicant has amended claim 39 to change the phrase "computer module" to be "computer." The term "computer" is supported in the specification and has an antecedent basis in claim 38, from which this claim depends. Accordingly, Applicant respectfully requests that the rejection under §112, be withdrawn.

Claims 29-39, 43-49 and 52 are rejected as being unpatentable over the combination U.S. Patent No. 6,604,044 to Kirk, U.S. Patent No. 5,212,804 to Choate and

U.S. Patent No. 5,043,903 to Constant. Applicant disagrees with and traverses this rejection for the following reasons.

Kirk discloses a method for resolving potential in-air conflicts, examining the space surrounding the aircraft, calculating maneuvers for the plane to avoid the conflict and the selecting the most appropriate maneuver. Constant is cited as teaching aircraft and radars and Choate teaches controllers having a radiotelephony link.

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In contrast, claim 29 recites, among other things, a device for automated evolutionary assistance to air traffic controllers including "a software module for establishing and updating a computer agenda, which is a list of the aircrafts' potential conflicts on the basis of any information and computation means of the computer" where "said software module [is] . . . configured for selecting, among said computer agenda, potential conflicts on crossing trajectories which are solvable by modification(s) of aircraft speed, climbing or descending rates and lateral shift of route, said modification(s) being so minor as to not interfere with the air traffic controllers' decision making processes." The device also includes "a data link between said computer and an on-board computer of the aircraft, the

data-link being used for automatically: (i) collecting complementary data from said on-board computer of the aircraft, said complementary data including flight data for establishing said computer agenda, and (ii) transmitting said minor modification(s) of flight parameters to said on-board computer for execution by the aircraft without requiring the air traffic controllers' prior agreement."

Conventional air traffic control at the time of the invention required flight controllers to make decisions on all air traffic control issues. The fact that most air conflicts could be solved by minor modifications in flight parameters so as not to interfere with air traffic controllers' decision making processes or involve air traffic controllers was unknown.

Experiments performed after the invention of the present application confirmed that slight modifications of the flight parameters that stay within tolerance limits of the flight plans (+/- 3% in longitudinal and vertical speeds) are undetectable by air traffic controllers, and a lateral shift of +/- 5 nm from the nominal route is also undetectable. These minor modifications therefore do not need air traffic controller review and can be automatically transferred to the concerned aircraft. Such minor modifications to flight parameters have been shown to sufficiently solve greater than 80% of all air traffic conflicts. The capacity of present airspace is limited by the capabilities of human beings to handle real time data. Thus, the present invention enhances the air space capacity by efficiently reducing an air traffic controller's traffic control decisions.

The combination of Kirk, Choate and Constant fails to disclose or suggest such subject matter.

Kirk discloses a method for generating conflict resolution for air traffic control in free flight operations using Problem Analysis, Resolution and Ranking (PARR). PARR is a technique for generating resolutions for air traffic control aircraft problems for aircraft with path constraints to make sure that the resolutions are easily cleared to the pilot of the aircraft with an optimized flight plan (Col. 5, lines 24-30). During the conflict resolution process, the completed PARR resolutions are ranked and displayed on a display for a flight controller 20 to select and implement one of the displayed resolutions (Col. 6, lines 49-55) where each resolution is a complete trial plan that returns the aircraft to its original route or destination.

The free flight operation of air traffic control described in Kirk is more complex than the conventional fixed route traffic control in place in most of the world. Thus, during the conflict resolution process, the resolutions are displayed to the flight controller who then selects and implements one of the resolutions or modifications to the flight parameters of an aircraft. Such resolutions or modifications are not so "minor as to not interfere with the air traffic controllers' decision making process" where the flight controller must actively decide on the resolution or modification to implement. As stated above, the flight controller selects, i.e., agrees, on a particular resolution or modification before the resolution/modification is transmitted to the on-board computer on the aircraft. Kirk does not

disclose or suggest that the resolution or flight modification is sent or can be sent to the aircraft without being reviewed and selected by the air traffic controller. Therefore, contrary to claim 29, the modifications to the flight parameters in Kirk cannot be automatically transmitted to the aircraft without first being selected by an air traffic controller.

Choate discloses a communication system that controls multiple two-way radiotelephone conversations between several aircraft 53 and a network of base stations 51 (see FIGs. 1 and 6). The system therefore controls the communications between the ground stations and the aircraft but not the messages in those communications. Choate does not disclose or suggest communications related to controlling and/or modifying the flight patterns, etc. of aircraft as recited in claim 29. Choate therefore does not remedy the deficiencies of Kirk.

Constant discloses a system for aiding the movement of moving units such as helicopters when flying in a formation. Each of the moving units has bidirectional communication such that each unit can accurately determine the position of every other unit in the formation. A leader unit then communicates with the other units regarding the positions of the units in the formation and the other units (slave units) then move to the designated positions. Thus, the communication in Constant is between the moving air units, i.e., between the pilots of the units, and not between a flight controller on the ground and aircraft. In fact, Constant does not describe air traffic control or air traffic controllers at all in

its specification. Furthermore, the flight parameters of the moving units in Constant can be automatically executed by the pilots of the units since the potential impact on air traffic control by the changed flight parameters/positions is not an issue in Constant.

For at least these reasons, Applicant submits that claim 29 and the claims that depend therefrom, are each patentably distinguished over the combination of Kirk, Choate and Constant and in condition for allowance.

Amended claim 52 includes similar subject matter to amended claim 29. Specifically, amended claim 52 recites, among other things, a method for automated evolutionary assistance to air traffic controllers that includes the steps of "establishing and updating a computer agenda, which is a list of the aircrafts' potential conflicts on the basis of any information and computation means of the computer," "establishing a data link between said computer and an on-board computer of the aircraft, the data-link being used for automatically: (i) collecting complementary data from said on-board computer of the aircraft, said complementary data including flight data for establishing said computer agenda, and (ii) transmitting said minor modification(s) of flight parameters to said on-board computer for execution by the aircraft without requiring the air traffic controllers' prior agreement." As stated above, the cited combination of Kirk, Choate and Constant fails to disclose or suggest automatically transmitting modifications of flight parameters to an onboard computer of an aircraft without requiring the air traffic controller's prior agreement or involvement.

Accordingly, Applicant submits that amended claim 52 is patentably distinguished over the combination of Kirk, Choate and Constant and in condition for allowance.

Claims 29-39, 43-49 and 52 are rejected under 35 U.S.C. §103(a) as being unpatentable over the combination of Kirk, Choate, Constant and U.S. Patent No. 6,314,362 to Erzberger et al. Applicant disagrees with and traverses this rejection for the following reasons.

As stated above, the combination of Kirk, Choate and Constant fails to disclose or suggest the subject matter of claims 29 and 52. Erzberger discloses a method and system for an automated tool for en route traffic controller that finds all aircraft flying on inefficient routes and then determines whether it is possible to save time by bypassing similar route segments and determining whether the improved route is free of conflicts with other aircrafts. The method includes the steps of searching for and identifying tracked aircraft and their associated flight plans, selecting those having one or more direct routes that will reduce the time of the flight to the destination, identifying potential conflicts along the selected routes and updating the flight plans of the tracked aircraft so the aircraft can benefit from one or more of the direct routes.

Changing some of the route segments to direct routes are major changes to the flight patterns of aircraft and therefore are not "minor" modifications. Such modifications

therefore would need to be reviewed and approved by a flight controller prior to being implemented.

Furthermore, after the flight plan is changed to incorporate one or more direct routes to reduce the time of the flight to a destination, the system identifies potential conflicts along the direct-to route (Col. 5, lines 1-4).

Additionally, as stated in Applicant's previous response, the system of Erzberger does not automatically transmit modifications to the flight parameters of an onboard computer of an aircraft as recited in amended claims 29 and 52. Instead, the conflict information is advisory only and is still reviewed by an air traffic controller to make a decision on whether to change the flight path of an aircraft. Erzberger's system therefore involves significant air traffic controller review and attention.

Furthermore, claim 37 recites, among other things, that the "display device is configured for displaying the aircraft pairs of said computer agenda, and a specific icon that makes displaying the virtual keyboard specifically adapted to the situation when designated by the air traffic controllers." The Examiner states that Erzberger discloses the subject matter of claim 37 at Col. 8, lines 53-67. Applicant disagrees. Erzberger discloses a graphical user interface as shown in FIG. 4 but does not disclose or suggest utilizing a virtual keyboard for use by air traffic controllers.

For these reasons, Applicant submits that amended claims 29 and 52, and the claims that depend therefrom are each patentably distinguished over the combination of Kirk, Choate, Constant and Erzberger and in condition for allowance.

In view of the above remarks, the application is respectfully submitted to be in allowable form. Allowance of the rejected claims is respectfully requested. Should the Examiner discover there are remaining issues, which may be resolved by a telephone interview, the Examiner is invited to contact Applicant's undersigned attorney at the telephone number listed below.

Respectfully submitted,

GREER, BURNS & CRAIN, LTD.

By /Christopher S. Hermanson/
Christopher S. Hermanson
Registration No. 48,244

October 20, 2010
300 S. Wacker Drive
Suite 2500
Chicago, Illinois 60606-6501
Telephone: (312) 360-0080
Facsimile: (312) 360-9315
Customer No. 24978